

IN THE CLAIMS:

Amendments to the Claims

Please amend claims 1-4 and add the new claim as shown below.

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A magnetic disk drive that drives and positions an actuator using a voice coil motor, comprises:

a current sensing resistor connected in series to a terminal on a current input side of said voice coil motor;

a first operational amplifier in which a reverse input terminal is connected to a terminal on the current input side of said voice coil motor via a first resistor, a non-reverse input terminal is connected to a terminal on ~~the~~a current output side of said voice coil motor via a second resistor, said non-reverse input terminal is connected via a third resistor and a first capacitor which are arranged ~~in~~in parallel to a reference voltage, and a reverse input terminal and output terminal are connected in parallel to a fourth resistor and a second capacitor;

a second operation amplifier in which a reverse input terminal is connected via a fifth resistor to a terminal on the current input side of said current sensing resistor, a non-reverse input terminal is connected via a sixth resistor to the current output side of said current sensing resistor, said non-reverse input terminal is connected via a seventh resistor to a reference voltage, and a reverse input terminal and output terminal are connected by an eighth resistor; and

a third operational amplifier in which a reverse input terminal is connected via a ninth resistor to an output terminal of said second operational amplifier, a non-reverse input terminal is connected via a tenth resistor to output terminal of said

first operational amplifier and via an eleventh resistor to a reference voltage, and a reverse input terminal and output terminal are connected via a twelfth resistor.

2. (currently amended) The magnetic disk drive according to claim 1, wherein ~~the~~ resistance values of said first resistor and said second resistor, said third resistor and said fourth resistor, said fifth resistor and said sixth resistor, said seventh resistor and said eighth resistor, said ninth resistor and said tenth resistor, and said eleventh resistor and said twelfth resistor are respectively equal and wherein capacities of said first and said second capacitors are equal.

3. (currently amended) A magnetic disk drive that drives and positions an actuator with a voice coil motor, comprises:

a current sensing resistor connected in series to a terminal on ~~the-a~~ current input side of said voice coil motor;

a first operational amplifier in which a reverse input terminal is connected via a first resistor to a terminal on the current input side of said voice coil motor, a non-reverse input terminal is connected via a second resistor to ~~the-a~~ current output side of said voice coil motor, said non-reverse input terminal is connected via a third resistor and a first capacitor which are arranged in parallel to a reference voltage, and a reverse input terminal and output terminal are connected in parallel by a fourth resistor and a second capacitor;

a second operational amplifier in which a reverse input terminal is connected via a fifth resistor to a terminal on ~~the-a~~ current input side of ~~current~~ of said current sensing resistor, a non-reverse input terminal is connected via a sixth resistor to a terminal on ~~the-a~~ current output side of said current sensing resistor, said non-reverse input terminal is connected via a seventh resistor to a reference voltage, and a reverse input terminal and output terminal are connected by an eighth resistor; and

a microcomputer having an AD converter that encrypts the output of said first operational amplifier and said second operational amplifier, a sampler that samples the encrypted output of said first operational amplifier and said second operational amplifier, and a computation means that subtracts the sampled output of said first and second operational amplifiers.

4. (currently amended) The magnetic disk drive according to claim 3, wherein resistance values of said first resistor and said second resistor, said third resistor and said fourth resistor, said fifth resistor and said sixth resistor, and said seventh resistor and said eighth resistor, are equal, and wherein capacities of said first capacitor and said second capacitor are respectively equal.

5. (new) The magnetic disk drive according to claim 3, wherein said microcomputer further comprises:

a constant gain unit coupled to said sampler that samples the encrypted output of said second operational amplifier;

a digital compensator inputted with a difference between a target back electromotive force and a subtracted output by said computation means; and

a DA converter which converts an output of said digital compensator into a current command value.